



61% PROGRESS: HeartCode ACLS 2025

TT Ahmed Othman

A



Coach



Push ▶ for reading content aloud.



What should your next steps be to assess and treat this patient?

You got it!

- Your Answer | Establish IV access
- Your Answer | Obtain a 12-lead ECG
- Your Answer | Maintain the airway and administer oxygen if needed
 - Algorithm**
 - [Learn more](#)

 I Know It

[CHALLENGE US](#) [NEXT](#)

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

42% PROGRESS: HeartCode ACLS 2025

To exit full screen, move mouse to top of screen or press F11

→ 4h 17m left

TT Ahmed Othman

A

←



Coach



Push ▶ for reading content aloud.



RESPIRATORY RATE AND TIDAL VOLUME



Normal and Abnormal Breathing

The average respiratory rate for an adult at rest is about 12 to 20/min. Typically, a tidal volume of 6 mL/kg, or approximately 500 mL, maintains normal oxygenation and elimination of CO₂.

- Tachypnea is a respiratory rate above 20/min, and bradypnea is a respiratory rate below 12/min.
- A respiratory rate below 6/min (hypoventilation) requires assisted ventilation with a bag-mask device or advanced airway with 100% oxygen.



I KNEW



GOT IT NOW



THINK I GOT IT



I DON'T GET IT

CHALLENGE US



Self-Assessment 2

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



42% PROGRESS: HeartCode ACLS 2025

4h 17m left

TT Ahmed Othman

A



Coach



What is the average respiratory rate for an adult at rest?

You got it!

Learn more here:

Respiratory Rate and T...

Your Answer

| 12 to 20/min



I Know It

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time





43% PROGRESS: HeartCode ACLS 2025

~4h 14m left

TT Ahmed Othman

A

<

Coach



Learn more here:

Respiratory Rate and Ti...



I Know It

Your Answer

6 to 8 mL/kg

CHALLENGE US

NEXT

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



Coach



Push ▶ for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST



Respiratory Distress

Respiratory distress is a clinical state characterized by abnormal respiratory rate or effort—either increased (eg, tachypnea, nasal flaring, retractions, use of accessory muscles) or inadequate (eg, hypoventilation, bradypnea).

Respiratory distress can range from mild to severe. For example, a patient with mild tachypnea and a mild increase in respiratory effort with changes in airway sounds is in mild respiratory distress.

A patient with marked tachypnea, significantly increased respiratory effort, deterioration in skin color, and changes in mental status is in severe respiratory distress. Severe respiratory distress can indicate respiratory failure.

Signs of respiratory distress (varying severity)

- Tachypnea
- Increased respiratory effort (eg, nasal flaring, retractions)
- Inadequate respiratory effort (eg, hypoventilation, bradypnea)
- Abnormal airway sounds (eg, stridor, wheezing, grunting)
- Tachycardia
- Pale, cool skin (however, some causes of respiratory distress, like sepsis, may cause warm, red, and

1

2

3

NEXT

Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

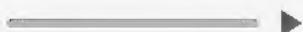
CHALLENGE US



Coach



Push ► for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST

A patient with marked tachypnea, significantly increased respiratory effort, deterioration in skin color, and changes in mental status is in severe respiratory distress. Severe respiratory distress can indicate respiratory failure.

Signs of respiratory distress (varying severity)

- Tachypnea
- Increased respiratory effort (eg, nasal flaring, retractions)
- Inadequate respiratory effort (eg, hypoventilation, bradypnea)
- Abnormal airway sounds (eg, stridor, wheezing, grunting)
- Tachycardia
- Pale, cool skin (however, some causes of respiratory distress, like sepsis, may cause warm, red, and diaphoretic skin)
- Changes in level of consciousness/agitation
- Use of abdominal muscles to help breathe

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1 2 3 **NEXT**

CHALLENGE US

Coach



Push ▶ for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST



Respiratory Failure

Respiratory failure is a clinical state of inadequate oxygenation, ventilation, or both. Respiratory failure is often the end stage of respiratory distress.

If the patient has abnormal central nervous system control of breathing or muscle weakness, they may show little or no respiratory effort despite being in respiratory failure. In these situations, you may need to identify respiratory failure based on clinical findings. Confirm the diagnosis with objective measurements, such as pulse oximetry or blood gas analysis.

Suspect probable respiratory failure if some of the following signs are present:

- Marked tachypnea
- Bradypnea, apnea
- No respiratory effort
- Poor to absent distal air movement
- Bradycardia
- Cyanosis
- Stupor, coma (late)

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

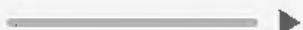
PREVIOUS 1 2 3 NEXT

CHALLENGE US

Coach



Push ▶ for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST

If the patient has additional central nervous system control of breathing or muscle weakness, they may show signs of no respiratory effort despite having respiratory failure. In these situations, you may need to identify respiratory failure based on clinical findings. Confirm the diagnosis with objective measurements, such as pulse oximetry or blood gas analysis.

Suspect probable respiratory failure if some of the following signs are present:

- Marked tachypnea
- Bradypnea, apnea
- No respiratory effort
- Poor to absent distal air movement
- Bradycardia
- Cyanosis
- Stupor, coma (late)

Respiratory failure can result from upper or lower airway obstruction, lung tissue disease, and disordered control of breathing (eg apnea or shallow, slow respirations). When respiratory effort is inadequate, respiratory failure can occur without typical signs of respiratory distress. Respiratory failure requires intervention to prevent deterioration to cardiac arrest. Respiratory failure can occur with a rise in arterial CO₂ levels (hypercapnia), a drop in blood oxygenation (hypoxemia), or both.

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

PREVIOUS 1 2 3 NEXT

CHALLENGE US

Coach



Push ▶ for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST



Respiratory Arrest

Respiratory arrest is the absence of breathing, usually caused by an event such as drowning or head injury. Another cause of respiratory arrest may be causes of centrally mediated respiratory failure, such as opiate overdoses.

For an adult in respiratory arrest, provide a tidal volume of approximately 500 to 600 mL (6 to 7 mL/kg) to produce visible chest rise. Patients with airway obstruction or poor lung compliance may need higher pressures to produce visible chest rise.

A pressure-relief valve on a resuscitation bag-mask device may prevent sufficient tidal volume in these patients, so ensure that you can bypass the device's pressure-relief valve and use high pressures, if necessary, to produce visible chest rise. Avoid excessive ventilation (too many breaths or too large a volume) during respiratory arrest and cardiac arrest.



Avoid Excessive Ventilation

If a patient is in respiratory arrest and has a pulse, but is not breathing, ventilate once every 6 seconds. After 2 minutes, reassess the pulse. Avoid excessive ventilation during respiratory arrest and cardiac arrest. Excessive ventilation can cause gastric inflation and complications such as regurgitation and aspiration.

Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

PREVIOUS

1

2

3

I KNEW

GOT IT NOW

THINK I GOT IT

I DON'T GET IT

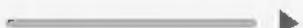
CHALLENGE US



Coach



Push ▶ for reading content aloud.



HOW RESPIRATORY DISTRESS AND RESPIRATORY FAILURE CAN LEAD TO RESPIRATORY ARREST

poor lung compliance may need higher pressures to produce visible chest rise.

A pressure-relief valve on a resuscitation bag-mask device may prevent sufficient tidal volume in these patients, so ensure that you can bypass the device's pressure-relief valve and use high pressures, if necessary, to produce visible chest rise. Avoid excessive ventilation (too many breaths or too large a volume) during respiratory arrest and cardiac arrest.

Avoid Excessive Ventilation

If a patient is in respiratory arrest and has a pulse, but is not breathing, ventilate once every 6 seconds. After 2 minutes, reassess the pulse. Avoid excessive ventilation during respiratory arrest and cardiac arrest. Excessive ventilation can cause gastric inflation and complications such as regurgitation and aspiration.

Excessive ventilation can be harmful because it

- Increases intrathoracic pressure
- Decreases venous return to the heart
- Diminishes cardiac output and survival
- May cause cerebral vasoconstriction, reducing blood flow to the brain

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

PREVIOUS 1 2 3

I KNEW GOT IT NOW THINK I GOT IT DON'T GET IT

CHALLENGE US



43% PROGRESS HeartCode ACLS 2025

TT Ahmed Othman

A



Coach



An 18-year-old patient is reporting difficulty breathing and is displaying increased respiratory effort. Auscultation reveals bilateral wheezing. The respiratory rate is 28 breaths per minute. Oxygen saturation is 91%. PETCO₂ is 44 mm Hg.

How would you categorize this patient's condition?

Autoplay On

HIDETEXT ➤

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1

- An 18-year-old patient is reporting difficulty breathing and is displaying increased respiratory effort.
- Auscultation reveals bilateral wheezing.
- The respiratory rate is 28 breaths per minute.
- Oxygen saturation is 91%.
- PETCO₂ is 44 mm Hg.

How would you categorize this patient's condition?

CHOOSE THE CORRECT ANSWER

Respiratory failure

Respiratory arrest

Normal respiratory status

Respiratory distress

KNOWN

THINK IT OVER

NOT SURE

NO IDEA

4h 15m left.



Coach



An 18 year old patient is reporting difficulty breathing and is displaying increased respiratory effort.

Auscultation reveals bilateral wheezing.

The respiratory rate is 28 breaths per minute.

Oxygen saturation is 91%

PETCO₂ is 44 mm Hg.

How would you categorize this patient's condition?

Autoplay On

HIDE TEXT ➤

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1

- An 18-year-old patient is reporting difficulty breathing and is displaying increased respiratory effort.
- Auscultation reveals bilateral wheezing.
- The respiratory rate is 28 breaths per minute.
- Oxygen saturation is 91%.
- PETCO₂ is 44 mm Hg.

How would you categorize this patient's condition?

Your Answer

Respiratory distress

Know it

CHALLENGE US

NEXT



43% PROGRESS HeartCode ACLS 2015

Ahmed Othman

A



Coach



2

A 59-year-old patient is reporting difficulty breathing.

Physical examination reveals nasal flaring, intercostal retractions, and use of accessory muscles.

The respiratory rate is 28 breaths per minute.

Oxygen saturation is 92%.

PETCO₂ is 36 mm Hg.

How would you categorize this patient's

Autoplay On

HIDE TEXT

• A 59-year-old patient is reporting difficulty breathing.
• Physical examination reveals nasal flaring, intercostal retractions, and use of accessory muscles.
• The respiratory rate is 28 breaths per minute.
• Oxygen saturation is 92%.
• PETCO₂ is 36 mm Hg.

How would you categorize this patient's condition?

CHOOSE THE CORRECT ANSWER

Respiratory failure

Normal respiratory status

Respiratory arrest

Respiratory distress

KNOW IT!

THINKING GAMES

PRACTICE

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



2

A 59-year-old patient is reporting difficulty breathing.

Physical examination reveals nasal flaring, intercostal retractions, and use of accessory muscles.

The respiratory rate is 28 breaths per minute

Oxygen saturation is 92%.

PETCO₂ is 36 mm Hg

How would you categorize this patient's

Autoplay On

HIDE TEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

A 59-year-old patient is reporting difficulty breathing.

Physical examination reveals nasal flaring, intercostal retractions, and use of accessory muscles.

The respiratory rate is 28 breaths per minute.

Oxygen saturation is 92%.

PETCO₂ is 36 mm Hg.

How would you categorize this patient's condition?

Not there yet.

Your Answer

Respiratory failure

Correct Answer

Respiratory distress

Learn more here:

How Respiratory Distress and Respiratory Failure Can Lead to Respiratory Arrest

CHALLENGE US

NEXT

Know it

Don't know it



Coach



Push ► for reading content
 aloud



A 65-year-old patient is having difficulty breathing while sleeping at night. He has a history of emphysema.

- The patient has a history of emphysema.
- The patient is drowsy.
- Auscultation reveals bilateral wheezing, although the lung sounds are difficult to appreciate.
- The respiratory rate is 38 breaths per minute.
- Oxygen saturation is 85%.
- PETCO₂ is 49 mm Hg.

How would you categorize this patient's condition?

CHOOSE THE CORRECT ANSWER

Normal respiratory status

Respiratory distress

Respiratory arrest

Respiratory failure



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



Coach



Learn more here

 How Respiratory Distress

A 75-year-old patient is having difficulty breathing, with no history of trauma.

- The patient has a history of emphysema.
- The patient is drowsy.
- Auscultation reveals bilateral wheezing, although the lung sounds are difficult to appreciate.
- The respiratory rate is 38 breaths per minute.
- Oxygen saturation is 85%.
- PETCO₂ is 49 mm Hg.

How would you categorize this patient's condition?

You got it!



Your Answer

Respiratory failure



Kamal E

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the question.



ADVANCED BEGINNER

44% PROGRESS HeartCode ACLS 2025

4h 19m left

AH Ahmed Othman

A

<

Coach



Push ▶ for reading content
aoud.



What is the term for the rise in arterial carbon dioxide levels typically associated with respiratory failure?

CHOOSE THE CORRECT ANSWER

Hypoxemia

Hyperventilation

Bradypnea

Hypercapnia

KNOWLEDGE

IN-TO-KNOW

LEARN

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEG INNER

44% PROGRESS. HeartCode ACLS 2025

4h 19m left

TT Ahmed Othman

A



Coach



You got it!

Learn more here:

How Respiratory Distress

Your Answer

Hypercapnia



Know it

CHALLENGE US

INDEX



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content aloud.



CHOOSE THE CORRECT ANSWER

2 to 3 mL/kg

4 to 5 mL/kg

6 to 7 mL/kg

8 to 9 mL/kg

KNOW IT

THINK I KNOW IT

INCORRECT

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time:





44% PROGRESS HeartCode ACLS 2025

4h 19m left

TT Ahmed Othman

A

<

Coach



How much tidal volume (ml/kg) you provide with a bag-mask device to produce visible chest rise (or end-tidal carbon dioxide rise) in a child?

You got it!

Your Answer: 6 to 7 mL/kg

Learn more here: [How Respiratory Distress](#)

CHALLENGE US NEXT

Know it

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



45% PROGRESS: HeartCode ACLS 2025

4h 17m left

TT Ahmed Othman

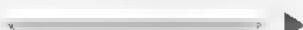
A



Coach



Push ▶ for reading content
about



CHOOSE THE CORRECT ANSWER

HEPA or viral filter

PETCO₂ cuvette

Pressure-relief valve

Manometer



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

45% PROGRESS HeartCode ACLS 2025

4h 17m left

TT Ahmed Othman

A

Coach



Learn more here

How Respiratory Distress



What device on a resuscitation bag or mask device may prevent tidal volume in patients with poor lung compliance?

Your Answer: Pressure-relief valve

Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content aloud.



MANAGING RESPIRATORY ARREST

Management of respiratory arrest includes both BLS and ACLS interventions

- Giving supplemental oxygen
- Opening the airway
- Providing basic ventilation
- Using basic airway adjuncts (oropharyngeal airway and nasopharyngeal airway)
- Suctioning

Remember, for patients with a perfusing rhythm: deliver breaths once every 6 seconds.

Giving Supplemental Oxygen

Give oxygen to patients with acute cardiac symptoms or respiratory distress. Monitor their oxygen saturation. For patients in respiratory or cardiac arrest, strive for 100% oxygen saturation.



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

CHALLENGE US



45% PROGRESS: HeartCode ACLS 2025

4h 17m left

TT Ahmed Othman

A



Coach



Patients will be perturbed by rhythms should receive ventilation once every 10 seconds.

You got it!

Learn more here

Managing Respiratory ..



Know it

CHALLENGE JS

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



Progress: 100%



Coach



Push ▶ for reading content
a lld

1- AND 2-RESCUER USE OF BAG-MASK DEVICES



Opening the Airway

Let us begin with basic airway skills. The first 2 steps in any airway management response involve opening and clearing the airway.

First, open the airway by using a head tilt-chin lift maneuver. Place one hand on the victim's forehead and push with your palm to tilt the head back. Place the fingers of the other hand under the bony part of the lower jaw, near the chin. Lift the jaw to bring the chin forward.



In patients with suspected cervical spine trauma, use the jaw-thrust maneuver to reduce neck and spine movement. Open the patient's airway by using a jaw thrust without head extension. But remember that maintaining a patent airway and providing adequate ventilation are your priorities, so use a head tilt-chin lift maneuver if the jaw thrust is not effective.

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1 2 3 **NEXT**

CHALLENGE US

Coach



Push ▶ for reading content
a loud



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1- AND 2-RESCUER USE OF BAG-MASK DEVICES



In patients with suspected cervical spine trauma, use the jaw-thrust maneuver to reduce neck and spine movement. Open the patient's airway by using a jaw thrust without head extension. But remember that maintaining a patent airway and providing adequate ventilation are your priorities, so use a head tilt-chin lift maneuver if the jaw thrust is not effective.

Have another team member stabilize the patient's head in a neutral position as you manipulate the airway. Restrict spinal motion manually rather than with immobilization devices. Manual spinal immobilization is safer, and cervical collars may complicate airway management or even interfere with airway patency. Spinal immobilization devices are helpful during transport.



1 2 3 **NEXT**

CHALLENGE US ?

Coach



Push ▶ for reading content
a loud



1- AND 2-RESCUER USE OF BAG-MASK DEVICES



Bag-Mask Ventilation Procedure

Bag-mask devices are the most common way to provide positive pressure ventilation. When you use a bag-mask device, deliver approximately 500 to 600 mL tidal volume sufficient to produce chest rise over 1 second. Bag-mask ventilation is not the recommended method of ventilation for single rescuers during CPR. (A single rescuer should use a pocket mask for ventilation, if available.) Providers can use the following techniques to hold the bag-mask device, depending on the number of rescuers:

1 rescuer

The rescuer gets into position at the patient's head and circles the thumb and first finger around the top of the mask (forming a "C") while using the third, fourth, and fifth fingers (forming an "E") to lift the jaw. This is called the E-C clamp technique.



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions

2 rescuers

PREVIOUS 1 2 3

NEXT

CHALLENGE US ?



ADVANCED BEGINNER

Coach



Push ► for reading content
about.



1- AND 2-RESCUER USE OF BAG-MASK DEVICES



2 rescuers

The most effective way to deliver bag-mask ventilation is to use the 2 person technique. The first provider focuses on keeping the airway open and securing the mask while the second provider delivers ventilation with the bag.

- The rescuer at the patient's head tilts the patient's head and seals the mask against the patient's face, with the thumb and first finger of each hand creating a "C," to provide a complete seal around the edges of the mask.
- The rescuer uses the remaining 3 fingers (the "E") to lift the jaw (this holds the airway open).
- The second rescuer slowly squeezes the bag (over 1 second) until the chest rises.
- Both providers should observe chest rise



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

PREVIOUS 1 2 3 NEXT

CHALLENGE US

Coach

Push ▶ for reading content
Cloud

1- AND 2-RESCUER USE OF BAG-MASK DEVICES

▶ Bag-Mask Valves and Ports

The universal connections on all airway devices allow you to connect any ventilation bag to numerous adjuncts.

Valves and ports may include

- One-way valves to prevent the patient from rebreathing exhaled air
- Oxygen ports to administer supplemental oxygen
- Medication ports to administer liquid and other medications
- Suction ports to clear the airway
- Attachments to provide quantitative sampling of ETCO₂

You can attach other adjuncts to the patient end of the valve, including a pocket face mask, laryngeal mask airway, laryngeal tube, esophageal-trachea tube, and endotracheal tube. Ongoing quantitative waveform capnography can also be attached to a bag-valve apparatus as an additional indication that ventilation is effective. An obstructed airway with no air exchange will not produce exhaled carbon dioxide, even if the patient still has a pulse.

PREVIOUS

1

2

3



CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions

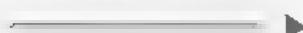
ADVANCED BEGINNER

46% PROGRESS HeartCode ACLS 2025

4h 15m left



Coach

Push ▶ for reading content
a card

What is the most effective way to deliver bag-mask ventilation?

CHOOSE THE CORRECT ANSWER

Using a jaw-thrust maneuver

 Using a head tilt–chin lift maneuver

Using a 1-person technique

Using a 2-person technique



Self-Assessment

Adjust your competence estimate to the right to focus on the questions





46% PROGRESS: HeartCode ACLS 2025

4h 15m left

TT Ahmed Othman

A

Coach



Maybe this can help you?

1- and 2-Rescuer Use o...

What is the most effective way to deliver bag-mask ventilation?

Not there yet...

Your Answer

Using a head tilt–chin lift maneuver

Correct Answer

Using a 2-person technique

Learn more here

1- and 2-Rescuer Use of Bag Mask Devices



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

46% PROGRESS: HeartCode ACLS 2025

~4h 18m left

Coach



Push ► for reading content
aoud

How long should the second rescuer squeeze the bag-mask device when providing 2:1 breath ventilation?

CHOOSE THE CORRECT ANSWER

4 seconds

1 second

3 seconds

2 seconds

I KNOW IT!

I'M NOT SURE

I DON'T KNOW

NO IDEA!

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

46% PROGRESS: HeartCode ACLS 2025

4h 18m left

Coach



Learn more here:

 1. and 2-Rescuer Use o..

How long should the second rescuer squeeze the bag-mask device when providing 25% oxygen ventilation?

You got it!

Your Answer: **1 second**

1. and 2-Rescuer Use o..

 Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEG NNER

Coach



When performing the jaw-thrust maneuver on patients with suspected cervical spine injury, where should you place your fingers?

CHOOSE THE CORRECT ANSWER

Push ► for reading content
about

Under the patient's chin

On top of the patient's jaw

Behind the patient's ears

Just under the angle of the lower jaw

I KNOW IT

I THINK I KNOW IT

I DON'T KNOW IT

NO IDEA

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time: ██████ X



46% PROGRESS: HeartCode ACLS 2025

4h 18m left

TT Ahmed Othman

A

<

Coach



When performing the jaw-thrust maneuver on patients with suspected cervical spine injury, where should you place your fingers?

You got it!

Learn more here:

Your Answer

Just under the angle of the lower jaw

1- and 2-Rescuer Use a..



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

47% PROGRESS: HeartCode ACLS 2025

4h 16m left

TT Ahmed Othman

A

Coach



Push ▶ for reading content
aloud

FILL IN THE MISSING NUMBER(S)

When you use a bag-mask device, you should deliver approximately 500 to 600 mL tidal volume.

I KNOW IT!

I HAD AN IDEA!

I DON'T KNOW

NO IDEA!

Self-Assessment ?

Adjust your competence estimate to the right, to focus on the questions



ADVANCED BEGINNER

TT Ahmed Othman

A

<

4.7% PROGRESS HeartCode ACLS 2025

4h 16m left

Coach



When you use a bag-mask device, you should deliver approximately **500 mL tidal volume.**

You got it!

Learn more here:

1 and 2-Rescuer Use a...



CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



47% PROGRESS Hear Code ACLS 2025

4h 17m left

TT Ahmed Othman



Coach

Push ► for reading content
a card.

AIRWAY ADJUNCTS



Airway Management

Properly positioning the airway may be all you need to do for patients who can breathe spontaneously. In patients who are unconscious, an OPA or NPA may be used to maintain an open airway.

Take the following precautions when using an oropharyngeal airway (OPA) or nasopharyngeal airway (NPA):

- Always check spontaneous respirations immediately after inserting an OPA or NPA.
- If respirations are absent or inadequate, start positive-pressure ventilation at once with an appropriate device.
- If a bag-mask device is not available, use a mouth-to-barrier device to provide ventilations.

1 2 3 **NEXT**

CHALLENGE US ?

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content
 aloud



AIRWAY ADJUNCTS



Basic Airway Adjunct: Oropharyngeal Airway (OPA)

The OPA is a J-shaped, single-use disposable plastic device that fits over the tongue to hold both it and the soft hypopharyngeal structures away from the posterior wall of the pharynx. OPAs are available in various sizes, with the most common adult size ranging from 8 to 10.



Use this device for:

- Patients at risk of developing airway obstruction from the tongue or from relaxed upper airway muscles
- Unconscious patients when other procedures (eg, head tilt-chin lift or jaw thrust) fail to maintain a clear, unobstructed airway.
- Facilitating suctioning of intubated patients' mouths and throats
- Preventing patients from biting and obstructing the ET tube

PREVIOUS 1 2 3 NEXT

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



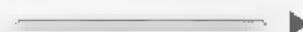
ADVANCED BEGINNER

CHALLENGE US

Coach



Push ► for reading content
a Q&A.



AIRWAY ADJUNCTS

of the pharynx. OPAs are available in various sizes, with the most common adult size ranging from 8 to 10.



Use this device for:

- Patients at risk of developing airway obstruction from the tongue or from relaxed upper airway muscles.
- Unconscious patients when other procedures (eg, head tilt-chin lift or jaw thrust) fail to maintain a clear, unobstructed airway.
- Facilitating suctioning of intubated patients' mouths and throats.
- Preventing patients from biting and obstructing the ET tube.

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions.



ADVANCED BEGINNER

PREVIOUS 1 2 3 NEXT

CHALLENGE US ?

Coach



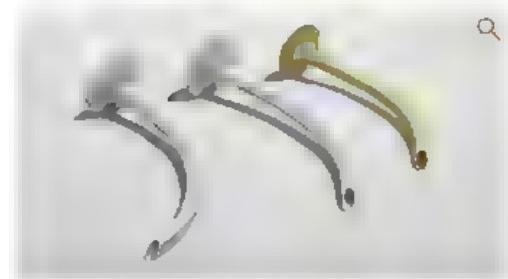
AIRWAY ADJUNCTS

Push ▶ for reading content aloud



Basic Airway Adjunct: Nasopharyngeal Airway (NPA)

The NPA is used as an alternative to an OPA in patients who need a basic airway adjunct. The NPA is a soft rubber or plastic uncuffed tube that provides a conduit for airflow between the nostrils and the pharynx.



Unlike oral airways, NPAs may be used in conscious, semi-conscious, or unconscious patients (patients with an intact cough and gag reflex). Use an NPA when inserting an OPA is technically difficult or dangerous, such as for patients with a gag reflex, trismus, massive trauma around the mouth, or wired jaws. You may also use NPAs in patients who are neurologically impaired with poor pharyngeal tone or coordination, leading to upper airway obstruction.

Self-Assessment

Adjust your competence estimate to the right to focus on the questions

PREVIOUS

1

2

3



ADVANCED BEGINNER

I KNEW GOT IT NOW THINK I GOT IT I DON'T GET IT

CHALLENGE US



48% PROGRESS HeartCode ACLS 2025

4h 14m left

TT Ahmed Othman

A



Coach



Which is a contraindication to the use of an oropharyngeal airway?

CHOOSE THE CORRECT ANSWER

Conscious patient

Absent gag reflex

Pediatric patient

Bag-mask ventilation



Self-Assessment

Adjust your competence estimate to the right to focus on the questions





48% PROGRESS HeartCode ACLS 2025

4h 14m 48s

TF Ahmed Othman



Coach



Which is a contraindication to the use of an oropharyngeal airway?

You got it!

Learn more here:

Airway Adjuncts

Your Answer

Conscious patient



CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



In which of the following patients can nasopharyngeal airways be used?

SELECT ALL THAT APPLY

- Patients with nasal trauma
- Conscious
- Unconscious
- Semiconscious

I KNOW IT
THINK I KNOW IT
NOT SURE
NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



48% PROGRESS: HeartCode ACLS 2025

4h 14m left

Coach



In which of the following patient levels would you place a patient?

You got it!

Your Answer Semiconscious

Your Answer Conscious

Your Answer Unconscious

Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



OROPHARYNGEAL AIRWAY (OPA)

Push ▶ for reading content
a card

OPA Insertion Technique

- 1 Clear the mouth and pharynx of secretions, blood, or vomit by using a rigid pharyngeal suction tip if possible.
- 2 Select the proper size OPA and place it against the side of the face. When the flange of the OPA is at the corner of the mouth, the tip is at the angle of the mandible. Insert the OPA so that it curves upward toward the hard palate as it enters the mouth.



- 3 As the OPA passes through the oral cavity and approaches the posterior wall of the pharynx, rotate the device 180° into the proper position. You can also insert the OPA at a 90° angle to the mouth and then turn it down toward the posterior pharynx as you advance the device.

1 2 **NEXT**

CHALLENGE US ?



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions

ADVANCED BEGINNER

Coach



OROPHARYNGEAL AIRWAY (OPA)

Push ► for reading content
about

- 3 As the OPA passes through the oral cavity and approaches the posterior wall of the pharynx, rotate the device 180° into the proper position. You can also insert the OPA at a 90° angle to the mouth and then turn it down toward the posterior pharynx as you advance the device.

In both methods, the goal is to curve the device around the tongue so that you do not inadvertently push the tongue back into the pharynx rather than pull forward. Alternatively, you can insert the OPA straight in while using a tongue depressor or similar device to hold the tongue forward as you advance the OPA.



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1 2 NEXT

CHALLENGE US ?

Coach



OROPHARYNGEAL AIRWAY (OPA)

Push ▶ for reading content
a loud.

⚠ Caution: Using an OPA

- OPAs that are too large may obstruct the larynx or cause trauma to the arygeal structures.
- OPAs that are too small or inserted improperly may push the base of the tongue back and obstruct the airway
- Insert the OPA carefully to avoid soft tissue trauma to the lips and tongue.
- Remember to use the OPA only in the unresponsive patient with no cough or gag reflex. If the patient has a cough or gag reflex, the OPA may stimulate vomiting and laryngospasm.

PREVIOUS

1

2



CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach

Push ▶ for reading content
about.

What is the first step in the use of an oropharyngeal airway?

CHOOSE THE CORRECT ANSWER

 Clear the mouth and pharynx

Ventilate the patient with a bag-mask device

Rotate the oropharyngeal airway into the proper position

Measure and select the proper size oropharyngeal airway

Self-Assessment

Adjust your competence estimate to the right to focus on the question.



ADVANCED BEGINNER

TT Ahmed Othman

A

<

49% PROGRESS HeartCode ACLS 2025

4h 12m left

Coach



Learn more here

O Oropharyngeal Airway (..



You got it!

Your Answer Clear the mouth and pharynx

Know

CHALLENGE US

NEXT

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

49% PROGRESS HeartCode ACLS 2025

4:12m left

Coach



Push ▶ for reading content aloud.



CHOOSE THE CORRECT ANSWER

Trauma to laryngeal structures

Soft tissue trauma to the lips

Pushing the base of the tongue back

 Laryngeal obstruction

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



What is a potential complication of intubating a patient with a thick tongue?

Not there yet...

Maybe this can help you?

Oropharyngeal Airway (...

Your Answer

Laryngeal obstruction

Correct Answer

Pushing the base of the tongue back

Learn more here

Oropharyngeal Airway (OPA)



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content
a card

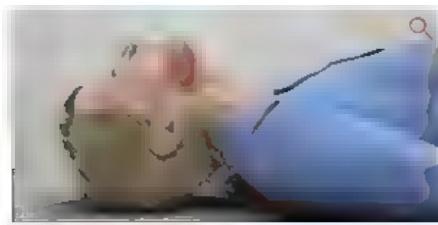
NASOPHARYNGEAL AIRWAY (NPA)

NPA Insertion Technique

1 Select the proper size

~ Compare the outer circumference of the NPA with the inner opening of the nostrils. The NPA should not be so large that it causes sustained blanching of the nostrils. You can use the diameter of the patient's smallest finger as a guide for the proper size.

The NPA should be as long as the distance from the tip of the patient's nose to the earlobe



1

2

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions

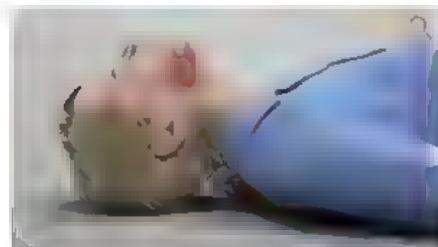


ADVANCED BEGINNER

CHALLENGE US



Coach

Push ▶ for reading content
about

NASOPHARYNGEAL AIRWAY (NPA)

- 2 Lubricate the airway with a water-soluble lubricant or anesthetic gel.
- 3 Insert the airway through the nostril in a posterior direction perpendicular to the plane of the face. Pass it gently along the floor of the nasopharynx. If you encounter resistance:
 - Slightly rotate the NPA to insert at the angle of the nasal passage and nasopharynx
 - Attempt to place through the other nostril (the size of a patient's nasal passages varies)
- 4 Reevaluate often and maintain head tilt by using a chin lift or jaw thrust. Mucus, blood vomit, or the soft tissues of the pharynx can obstruct the NPA, which has a small internal diameter. Frequently evaluate and suction the airway if needed to ensure patency.

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1 2 NEXTCHALLENGE US ?

Coach



Push ▶ for reading content
aloud



NASOPHARYNGEAL AIRWAY (NPA)

⚠ Caution: Using an NPA

- Insert the airway gently to avoid complications. The airway can irritate the mucosa or lacerate adenoidal tissue and cause bleeding and the patient could aspirate blood clots. You may need to suction to remove blood or secretions.
- An improperly sized NPA may enter the esophagus. With active ventilation such as bag-mask ventilation, an NPA in the esophagus may cause gastric inflation and possible hypoventilation.
- An NPA may cause aryngospasm and vomiting, even though it is commonly tolerated by semiconscious patients.
- Use caution in patients with facial trauma because of the risk of misplacement into the cranial cavity through a fractured cribriform plate.

PREVIOUS

1

2



CHALLENGE US



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEG NNER



50% PROGRESS HeartCode ACLS 2025

4h 11m left

T Ahmed Othman

A



Coach



FILL IN THE MISSING WORD(S)

The length of a correctly sized nasopharyngeal airway is the same as the distance from the tip of the patient's nose to the earlobe.

Push ► for reading content
a loud

I KNOW IT

I HAD NO IDEA

I DON'T KNOW

NO IDEA

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



50% PROGRESS: HeartCode ACLS 2025

4h 11m left

TT Ahmed Othman

A

Coach



The length of a correctly-sized nasopharyngeal airway is the same as the distance from the tip of the patient's nose to the

APC

You got it!

Learn more here:

Nasopharyngeal Airway..



CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



50% PROGRESS. HeartCode ACLS 2025

4h 12m left

TT Ahmed Othman

A



Coach



What is a potential complication of using a nasopharyngeal airway that is too long?

CHOOSE THE CORRECT ANSWER

Push ► for reading content
a card

Exiting through the oral cavity

Entering the esophagus

Blocking carotid blood flow

Nasopharyngeal obstruction



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

TT Ahmed Othman

A

<

50% PROGRESS: HeartCode ACLS 2025

4h 12m left



Coach



What is a potential complication of using a nasopharyngeal airway that is too long?

You got it!

Learn more here

Nasopharyngeal Airway

✓ Your Answer

Entering the esophagus



Know it

CHALLENGE US

NEXT >

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



What is the most serious potential complication of nasopharyngeal airway insertion into a patient with facial trauma?

CHOOSE THE CORRECT ANSWER

Laryngospasm

Trismus

Hypopharyngeal placement

Misplacement into the cranial cavity



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time



50% PROGRESS: HearCode ACLS 2025

TT Ahmed Othman

A

<

Coach



What is the most serious potential complication of nasopharyngeal airways - done to a patient with facial trauma?

You got it!

Learn more here:

Your Answer

Misplacement into the cranial cavity

Nasopharyngeal Airway...



Know

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ITI does not have a session time: X



Coach

Push ▶ for reading content
and

SUCTIONING

Suctioning Devices

Suctioning is essential to maintain a patient's airway. Suction devices include portable and wall-mounted units.

- Portable suction devices are easy to transport but may not provide adequate suction power.
- Wall-mounted suction units should be able to provide an airflow of more than 40 L/min at the end of the delivery tube and a vacuum of more than -300 mm Hg when the tube is clamped at full suction.
- Suction the airway immediately if the patient has copious secretions, blood, or vomit.

For suctioning, you will use both soft flexible and rigid catheters.

Soft flexible catheters

- In the mouth or nose
- For endotracheal tube deep suctioning
- For aspiration of thin secretions from the oropharynx and nasopharynx
- To perform intratracheal suctioning
- To suction through an in-place airway (e.g., NPA) to access the back of the pharynx in a patient with clenched teeth

1

2

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

CHALLENGE US

Coach



Push ► for reading content
aloud

SUCTIONING

For suctioning, you will use both soft flexible and rigid catheters.

Soft flexible catheters

- In the mouth or nose
- For endotracheal tube deep suctioning
- For aspiration of thin secretions from the oropharynx and nasopharynx
- To perform intratracheal suctioning
- To suction through an in-place airway (e.g. NPA), to access the back of the pharynx in a patient with clenched teeth

Rigid catheters

- To suction the oropharynx
- For suctioning thick secretions and particulate matter
- For more effective suctioning of the oropharynx

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

1 2 < NEXT

CHALLENGE US ?

Coach



Push ▶ for reading content
about



SUCTIONING

Oropharyngeal Suctioning Procedure

Follow these steps to perform oropharyngeal suctioning:

- Measure the catheter before suctioning.
- Gently insert the suction catheter or device into the oropharynx beyond the tongue. Do not insert it any further than the distance from the tip of the nose to the earlobe.
- Apply suction by occluding the side opening of the catheter while withdrawing with a rotating or twisting motion.
- If using a rigid suction device, place the tip gently into the oral cavity. Advance by pushing the tongue down to reach the oropharynx if necessary.
- Limit each suction attempt to 10 seconds or less.

Providers should suction the airway immediately if there are copious secretions, blood, vomit, or a foreign body. Use large-bore, nonkinking suction tubing and a large suction catheter with a rigid pharyngeal tip. High-suction pressure may be required.

PREVIOUS

1

2



I KNOW

GO TIME NOW

TRY IT AGAIN

DON'T GET ME

CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



ET TUBE SUCTIONING

Push ▶ for reading content
about

ET Tube Suctioning Procedure

Patients with pulmonary secretions may require suctioning even after endotracheal (ET) intubation.

Follow these steps to perform ET tube suctioning:

- Use a sterile technique to reduce the likelihood of airway contamination
- Gently insert the catheter into the ET tube but no further because it may injure the ET mucosa or stimulate coughing or bronchospasm. Be sure the side opening is not occluded during insertion
- Apply suction by occluding the side opening only while withdrawing the catheter with a rotating or twisting motion
- Do not exceed 10 seconds for a suction attempt. To avoid hypoxemia, precede and follow suctioning attempts with a short period of administration of 100% oxygen

Monitor the patient's heart rate, pulse, oxygen saturation, and clinical appearance during suctioning. If bradycardia develops, oxygen saturation drops, or clinical appearance deteriorates, interrupt suctioning at once. Administer high-flow oxygen until the heart rate returns to normal and the clinical condition improves. Assist ventilation as needed.

UNKNOWN

COMING UP

IN PROGRESS

DON'T GET ME

CHALLENGE US

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content
and

What is the maximum length of suction catheter that should be inserted into the patient's oropharynx beyond the tongue?

CHOOSE THE CORRECT ANSWER

The corner of the mouth to the epigastric region

The corner of the mouth to the laryngeal cartilage

The tip of the nose to the corner of the mouth

The tip of the nose to the earlobe

I KNOW IT!

I THINK I KNOW IT!

I DON'T KNOW IT!

NO IDEA!

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time.





51% PROGRESS HeartCode ACLS 2025

4h 11m left

TT Ahmed Othman

A



Coach



What is the maximum length of suction catheter that should be inserted into the patient's oropharynx beyond the tongue?

You got it!

Learn more here

Your Answer

The tip of the nose to the earlobe

Suctioning



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



When should you occlude the side opening of a suction catheter when performing oropharyngeal suctioning?

CHOOSE THE CORRECT ANSWER

- During insertion of the catheter
- Only when secretions are visualized
- During both withdrawal and insertion
- While withdrawing the catheter

I KNOW IT!

I THINK I KNOW IT!

I DON'T KNOW IT

NO IDEA!

Self-Assessment

Adjust your competence estimate to the right to focus on the question.



ADVANCED BEGINNER



52% PROGRESS: HeartCode ACLS 2025

• 4h 7m left

TT Ahmed Othman

A



Coach



When should you occlude the side opening of a suction catheter when performing oropharyngeal suctioning?

You got it!

✓ Your Answer

While withdrawing the catheter

Learn more here:

Suctioning



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



Coach



VENTILATION WITH ADVANCED AIRWAYS

Push ▶ for reading content
aoud.

Selecting an Advanced Airway

Selecting an advanced airway device depends on the high-performance team's training, scope of practice, and equipment.

Advanced airways include:

- ET tube
- Laryngeal tube
- Laryngeal mask airway

⚠ Caution: Advanced Airways

- An advanced airway may fail for a variety of reasons, so be sure to have an alternative airway management strategy such as a bag-mask device
- For any advanced airway device, the ventilation rate is once every 6 seconds during cardiac arrest and respiratory arrest
- We do not recommend the routine use of cricothyroid pressure in cardiac arrest
- Only experienced providers should insert these advanced airways.

Self-Assessment

Adjust your competence estimate to the right to focus on the questions

1 2 3 **CONNECT**

CHALLENGE US 



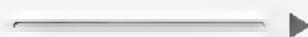
ADVANCED BEGINNER

Coach



VENTILATION WITH ADVANCED AIRWAYS

Push ▶ for reading content
a card



Endotracheal (ET) Tube

If you are assisting with ET intubation, refer to these basic steps for performing the procedure

- Prepare for intubation by assembling the necessary equipment
- Perform ET intubation.
- Inflate the cuff on the tube
- Attach the ventilation bag
- Confirm correct placement by physically examining the patient and using a confirmation device.
 - Continuous waveform capnography is recommended (in addition to clinical assessment) as the most reliable method of confirming and monitoring correct placement of an ET tube. However, you may use colorimetric and nonwaveform carbon dioxide detectors when waveform capnography is not available.
- Secure the tube in place and monitor for dislodgment. Use the DOPE mnemonic (displacement, obstruction, pneumothorax, equipment failure) to help you troubleshoot.

PREVIOUS 1 2 3

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



CHALLENGE US

Coach



VENTILATION WITH ADVANCED AIRWAYS

Push ▶ for reading content
audio

Laryngeal Tube

The advantage of the laryngeal tube's is that it is easy to place without addtional equipment. If you are trained to use a laryngeal tube you may consider it as an alternative to bag-mask ventilation or ET intubation for airway management in cardiac arrest.

Laryngeal Mask Airway

The laryngeal mask airway is an advanced airway alternative to ET intubation and provides comparable ventilation for airway management in cardiac arrest. There are many varieties of laryngeal airway, including some that allow passage of an endotracheal tube.

PREVIOUS

1

2

3



CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

53% PROGRESS: HeartCode ACLS 2025

• 4h 5m left

TT Ahmed Othman

A



Coach



What is the most reliable method of confirming and monitoring correct placement of an endotracheal tube?

You got it!

Learn more here:

✓ Your Answer

Quantitative waveform capnography

□ Ventilation with Advanced



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions





53% PROGRESS HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman

A



Coach



What is the recommended ventilation rate for adult CPR in a heart code with an advanced airway device in place?

CHOOSE THE CORRECT ANSWER

Push ► for reading content aloud.

Once every 15 compressions

Twice every 30 compressions

Once every 6 seconds

Once every 4 seconds

I KNOW IT

I THINK I KNOW IT

I SUSPECT IT

I HAVE NO IDEA

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time



© 2025 ZOLL Medical Corporation. All rights reserved. ZOLL, the ZOLL logo, HEARTCODE, and HEARTCODE AED are registered trademarks of ZOLL Medical Corporation. All other trademarks are the property of their respective owners.

53% PROGRESS: HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman

A

Coach



What is the recommended ventilation rate for an adult endotracheal intubated patient with an advanced airway device in place?

CHOOSE THE CORRECT ANSWER

Once every 15 compressions

Twice every 30 compressions

Once every 6 seconds

Once every 4 seconds

I KNOW IT!

I'M SICK OF IT!

I DON'T CARE!

I NO IDEA!

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time.





53% PROGRESS HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman

A



Coach



What is the recommended ventilation rate for an adult in cardiac arrest with an advanced airway device in place?

Learn more here:

Your Answer

Once every 6 seconds

Ventilation with Advan ..



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time X



53% PROGRESS HeartCode ACLS 2025

~4h 5m left

TT Ahmed Othman



Coach



Push ► for reading content
about



Introduction

A 54-year-old man became unconscious after suffering from severe shortness of breath and difficulty breathing. You arrive on scene and confirm that the scene is safe.

CHALLENGE JS

MIDJS

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ► for reading content
about

What initial actions should be taken?

SELECT ALL THAT APPLY

- Check for responsiveness
- Attach a 12-lead ECG
- Assess airway, breathing, and circulation (ABCs)
- Consider an advanced airway
- Call for additional help

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ► for reading content
about



The patient is unresponsive and not breathing but has a strong pulse.

What should your initial actions include?

SELECT ALL THAT APPLY

- Begin CPR
- Open the patient's airway via a head tilt-chin lift or jaw thrust
- Administer high-flow oxygen via a nonrebreathing mask
- Initiate ventilation with a bag-mask device attached to supplemental oxygen



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



53% PROGRESS: HeartCode ACLS 2025

4h 5m left

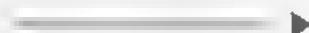
AH Ahmed Othman

A

Coach



Push ▶ for reading content
about



The patient's signs are HR 84/min, BP 124/73 mmHg, SpO₂ is 66%, and the skin is cyanotic around the mouth and extremities.

What is the recommended rate for rescue breaths?



CHOOSE THE CORRECT ANSWER

2 breaths every 10 seconds

1 breath every 6 seconds

2 breaths every 5 to 6 seconds

1 breath every 3 seconds

 **I KNOW IT!**

 **I THINK SO!**

 **I GUESS**

 **NO IDEA**

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



ANSWERED QUESTIONS



53% PROGRESS: HeartCode ACLS 2021

4h 5m left

TT Ahmed Othman

A

Coach



Push ► for reading content
about

What would you do if the patient you have laid down in your arms becomes unresponsive?

What is your next action?

CHOOSE THE CORRECT ANSWER

Increase the ventilation rate

Increase ventilation volume

Suction the airway

Intubate the patient



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content
aloud

The patient is not responding well to ventilation and suctioning. You decide to intubate the patient.

In addition to clinical assessment, what is the single most reliable method for confirming and monitoring correct placement of the ET tube?



CHOOSE THE CORRECT ANSWER

Auscultation

Chest x-ray

Quantitative waveform capnography

Direct visualization

I KNOW IT!

I HAVEN'T LEARNED IT YET

I DON'T KNOW

I HAVE NO IDEA

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions





53% PROGRESS: HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman



Coach



Push ► for reading content
about



What initial actions should be taken?

You got it!

- Your Answer Check for responsiveness
[Learn more](#)
- Your Answer Assess airway, breathing, and circulation (ABCs)
- Your Answer Call for additional help

CHALLENGE US

NEXT

Know it

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

53% PROGRESS HeartCode ACLS '22

4h 5m left

TT Ahmed Othman

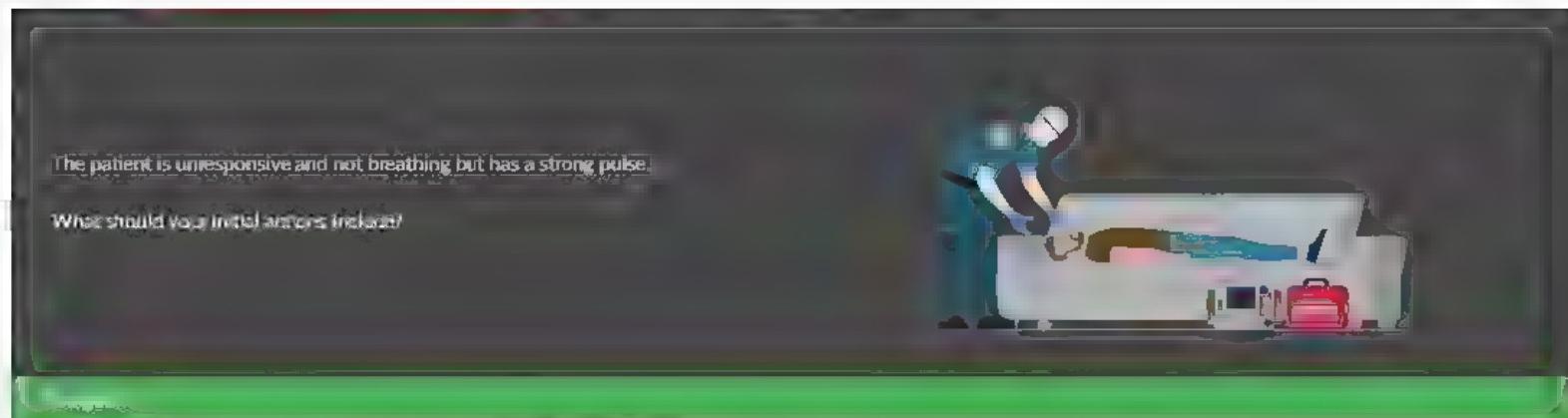
A

←

Coach



Push ▶ for reading content
about



Your Answer
Open the patient's airway via a head tilt-chin lift or jaw thrust
[Learn more](#)



Your Answer
Initiate ventilation with a bag-mask device attached to supplemental oxygen

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



Know it

CHALLENGE US

NEED HELP?



ADVANCED BEGINNER



Coach



Push ▶ for reading content
aloud

The patient's signs are HR 84/min, BP 124/73 mm Hg, SpO₂ is 66%, and the skin is cyanotic around the mouth and extremities.

What is the recommended rate for rescue breaths?



You got it!

✓ Your Answer

1 breath every 6 seconds

Learn more

CHALLENGE US

NEXT



I Know It

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

≡

53% PROGRESS HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman

A

←

Coach



Push ▶ for reading content
about

While ventilating the patient you hear gurgling sounds coming from the airway.

What is your next action?

You got it!

Your Answer: Suction the airway
[Learn more](#)

CHALLENGE US

NEXT



Know it

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



53% PROGRESS HeartCode ACLS 2025

• 4h 5m left

TT Ahmed Othman

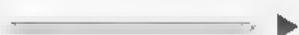
A



Coach



Push ► for reading content aloud.



The patient is not responding well to ventilation and suctioning, you decide to intubate the patient.

In addition to clinical assessment, what is the single most reliable method to confirming and monitoring correct placement of the ET tube?



ANSWER



Your Answer
Quantitative waveform capnography

[Learn more](#)

NEXT

CHALLENGE US



KNOWLEDGE

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ► for reading content
a card

BRADYCARDIA INTRODUCTION

Bradycardia is generally defined as any rhythm disorder with a heart rate less than 60/min; but for most patients bradycardia is not symptomatic until the heart rate is less than 50/min. The key is to determine if the bradycardia is causing a perfusion deficit to the vital organs.

Managing Bradycardia

- Differentiating between signs and symptoms caused by the slow rate vs those that are unrelated
- Correctly diagnosing the presence and type of atrioventricular (AV) block
- Using atropine as the drug intervention of first choice
- Deciding when to initiate transcutaneous pacing (TCP)
- Deciding when to start epinephrine or dopamine to maintain heart rate and blood pressure
- Knowing when to seek expert consultation about complicated rhythm interpretation, drugs, or management decisions

1

2

NEXT

CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ▶ for reading content
aoud



BRADYCARDIA INTRODUCTION

Heart Symptomatic Bradycardia

Bradycardia may have multiple causes, including some that are physiologic and require no assessment or therapy. For example, a well-trained athlete may have a resting heart rate less than 50/min, or occasionally lower.

In contrast, some patients have heart rates in the normal range, but these rates are inappropriate or insufficient for them. This is called a functional or relative bradycardia. For example, a heart rate of 70/min may be relatively too slow for a patient in cardiogenic or septic shock.

The key to managing symptomatic bradycardia is determining which signs or symptoms are due to the decreased heart rate. A symptomatic bradycardia exists clinically when 3 criteria are present:

- 1 The heart rate is slow
- 2 The patient has symptoms
- 3 The symptoms are due to the slow heart rate

PREVIOUS

1

2



CHALLENGE US



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



Coach

Push ▶ for reading content
aloud

SIGNS AND SYMPTOMS OF BRADYCARDIA

You must perform a focused history and physical examination to identify the signs and symptoms of a bradycardia

Symptoms

- Chest discomfort or pain
- Shortness of breath
- Decreased level of consciousness
- Weakness
- Fatigue
- Light-headedness
- Dizziness
- Presyncope or syncope

Signs

- Hypotension
- Drop in blood pressure on standing (orthostatic hypotension)
- Diaphoresis
- Pulmonary congestion on physical examination or chest x-ray
- Frank congestive heart failure or pulmonary edema

IN NEW

IN NOW

THINK I GOT IT

DON'T GET IT

Self-Assessment



Adjust your competence estimate to the right to focus on the questions

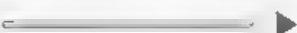


ADVANCED BEGINNER

CHALLENGE US



Coach

Push ► for reading content
aloud

SIGNS AND SYMPTOMS OF BRADYCARDIA

- Shortness of breath
- Decreased level of consciousness
- Weakness
- Fatigue
- Light-headedness
- Dizziness
- Presyncope or syncope

Signs

- Hypotension
- Drop in blood pressure on standing (orthostatic hypotension)
- Clapheoresis
- Pulmonary congestion on physical examination or chest x-ray
- Frank congestive heart failure or pulmonary edema
- Bradycardia-related (escape) frequent premature ventricular contractions or ventricular tachycardia (VT)

Self-Assessment



Adjust your competence estimate to the right to focus on the questions

Sometimes the symptom is not due to the bradycardia. For example, hypotension associated with bradycardia may be due to myocardial dysfunction rather than the bradycardia. Keep this in mind when you assess the patient's response to treatment.



ADVANCED BEGINNER

CHALLENGE US





54% PROGRESS. HeartCode ACLS 2025

~4h 10m left

AH Ahmed Othman

A

<

Coach



Which signs and symptoms indicate a symptomatic bradycardia?

SELECT ALL THAT APPLY

Pulmonary edema Respiratory arrest
 Hypotension Vomiting
 Fever Shortness of breath

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



54% PROGRESS HeartCode ACLS 2025

4h 10m left

TT Ahmed Othman

A



Coach



Which one of the following symptoms indicates hypotension?

You got it!

Learn more here:

□ Signs and Symptoms of...



- Your Answer **Shortness of breath**
- Your Answer **Hypotension**
- Your Answer **Pulmonary edema**



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



SECOND- AND THIRD-DEGREE ATRIOVENTRICULAR BLOCKS

Push ▶ for reading content aloud.

It is important to know the major AV blocks because treatment decisions are based on the type of block. Complete (or third-degree) AV block is generally the most clinically significant block because it is most likely to cause cardiovascular collapse and require immediate pacing. Recognizing a stable bradycardia due to AV block is a primary goal and recognizing the type of AV block is secondary.

Major AV Blocks

- Sinus bradycardia
- First-degree AV block
- Second-degree AV block
 - Type I (Wenckebach/Mobitz I)
 - Type II (Mobitz
- Third-degree AV block

1

2

NEXT

CHALLENGE US



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



SECOND- AND THIRD-DEGREE ATRIOVENTRICULAR BLOCKS

Push ▶ for reading content
about

▶ Examples



Sinus bradycardia with borderline first-degree AV block.

To determine the more challenging types of bradycardia, use the following tips for distinguishing the 2 types of second-degree AV blocks and third-degree AV blocks:

For second-degree type I AV block, the PR interval will get progressively longer until a beat is dropped.

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions

PREVIOUS 1 2



ADVANCED BEGINNER

I KNEW

I DO IT NOW

I CAN DO IT

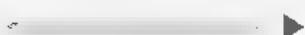
I DON'T GET IT

CHALLENGE US ?

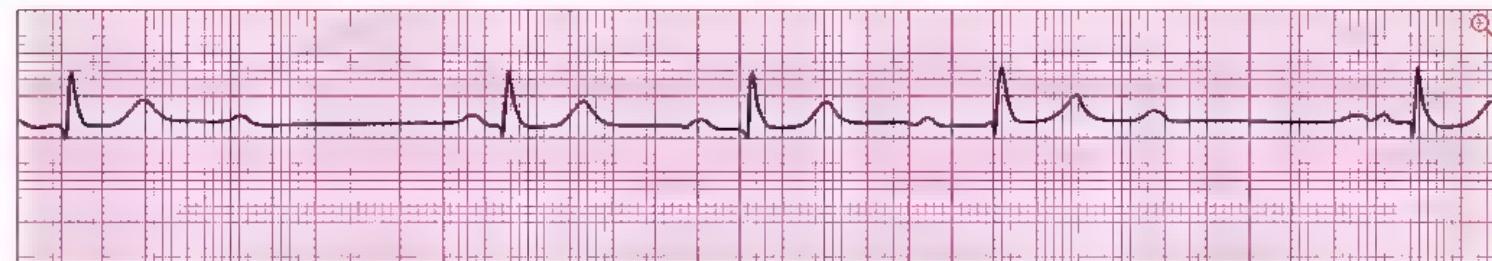
Coach



Push ▶ for reading content aloud



SECOND- AND THIRD-DEGREE ATRIOVENTRICULAR BLOCKS



Second-degree AV block type I

For second-degree type II AV blocks, the PR interval will stay the same length, but random QRS complexes will be dropped



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions

PREVIOUS 1 2

I KNOW

I DON'T KNOW

I DON'T CARE

I DON'T CARE

CHALLENGE US

?

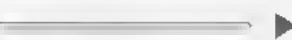


ADVANCED BEGINNER

Coach



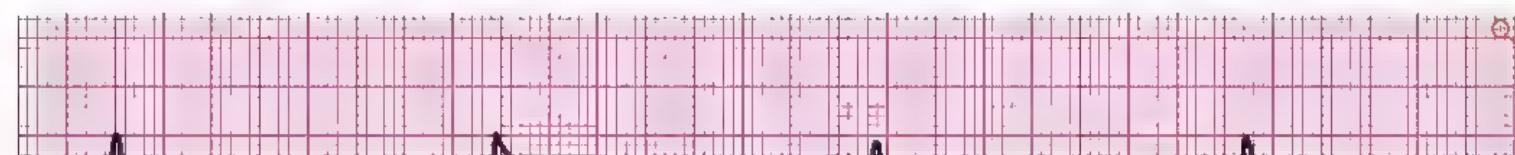
Push ▶ for reading content aloud



SECOND- AND THIRD-DEGREE ATRIOVENTRICULAR BLOCKS



For third-degree AV block, the P wave and QRS complex will not have any relationship with each other. The P waves and QRS complexes are independently firing. In a 3 blocks, there are more P waves than QRS complexes.



PREVIOUS

1

2

I KNOW IT

I DON'T KNOW IT

I DON'T CARE

I DON'T GET IT

CHALLENGE US

?



Self-Assessment ?

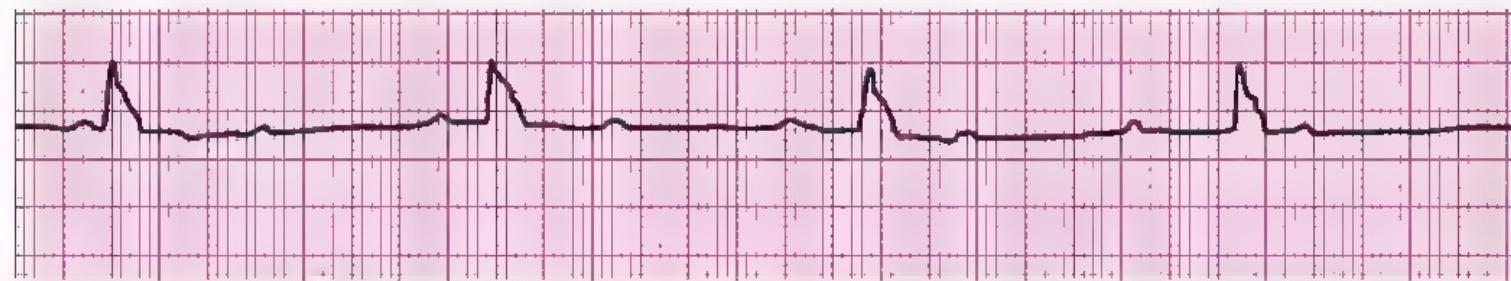
Adjust your competence estimate to the right to focus on the questions

ADVANCED BEGINNER

Coach

Push ▶ for reading content
about

SECOND- AND THIRD-DEGREE ATRIOVENTRICULAR BLOCKS



Complete AV block with a ventricular escape pacemaker (wide QRS, 0.12 to 0.14 second)



Third-degree AV block with a junctional escape pacemaker (narrow QRS, less than 0.12 second)

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions

PREVIOUS

1

2

 I KNEW I DON'T KNOW I DON'T CARE I DON'T GET ITCHALLENGE US 

ADVANCED BEGINNER

4h 7m left

Coach

Push ▶ for reading content
aoud

CHOOSE THE CORRECT ANSWER

Second-degree type I

 Third-degree

Second-degree type II

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Maybe this can help you?

 Second- and Third-Deg

During analysis of the patient's ECG, you note the presence of more P waves than QRS complexes. You also note all PR intervals have uniform length but random QRS complexes are dropped.

You can see an example ECG below:

The ECG strip shows a regular rhythm with a rate of approximately 60 bpm. There are several P waves followed by QRS complexes. Notably, there are several instances where a QRS complex is absent, indicating dropped beats. The PR interval remains relatively constant between the visible complexes.

 Your Answer

Third-degree

Correct Answer

Second-degree type II

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



KNOW IT

CHALLENGE US

NEXT

Coach



Push ▶ for reading content about.

During analysis of the patient's ECG, you note the presence of more P waves than QRS complexes. You also note the absence of a relationship between the P wave and the QRS complex. You can see an example of this rhythm below.



What type of atrioventricular block is most likely present?

CHOOSE THE CORRECT ANSWER

Third-degree

Second-degree type I

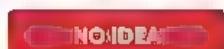
First-degree

Second-degree type II

 KNOW IT

 IN UNKNOWN

 GUESS

 NO IDEA

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Learn more here:

 Second- and Third-Deg.

During analysis of the patient's ECG, you note the presence of more P waves than QRS complexes. You suspect either preexcitation or a relationship between the PR interval and the QRS complex. You can see an example of this rhythm below.



What type of atrioventricular block is most likely present?

 Your Answer

| Third-degree



Know it

CHALLENGE JS

NEXT

Self-Assessment 

Adjust your competence estimate to the right to focus on the questions



Coach



MANAGING BRADYCARDIA

Push ▶ for reading content
aloud

The Bradycardia Algorithm

The Adult Bradycardia Algorithm outlines the steps for assessing and managing a patient who presents with unstable bradycardia with a pulse. Implementing this algorithm begins with identifying bradycardia.

Identifying Bradycardia

Identify whether the heart rate is

- Bradycardia by definition (ie, heart rate less than 50/min)
- Inadequate for the patient's condition (functional or relative)

Primary Assessment

Next perform the Primary Assessment, including the following:

- A. Maintain patent airway
- B. Assist breathing as needed; give oxygen in case of hypoxemia; monitor oxygen saturation
- C. Monitor blood pressure, oximetry, and heart rate; obtain and review a 12-lead ECG; establish IV access
- D. Conduct a problem-focused history and physical examination; search for possible hypoxic and toxicologic causes; and treat possible contributing factors.

Self-Assessment

Adjust your incompetence estimate to the right to focus on the questions.



Adult Bradycardia Algorithm

1 2 3 4

CHALLENGE US

ADVANCED BEGINNER

Coach

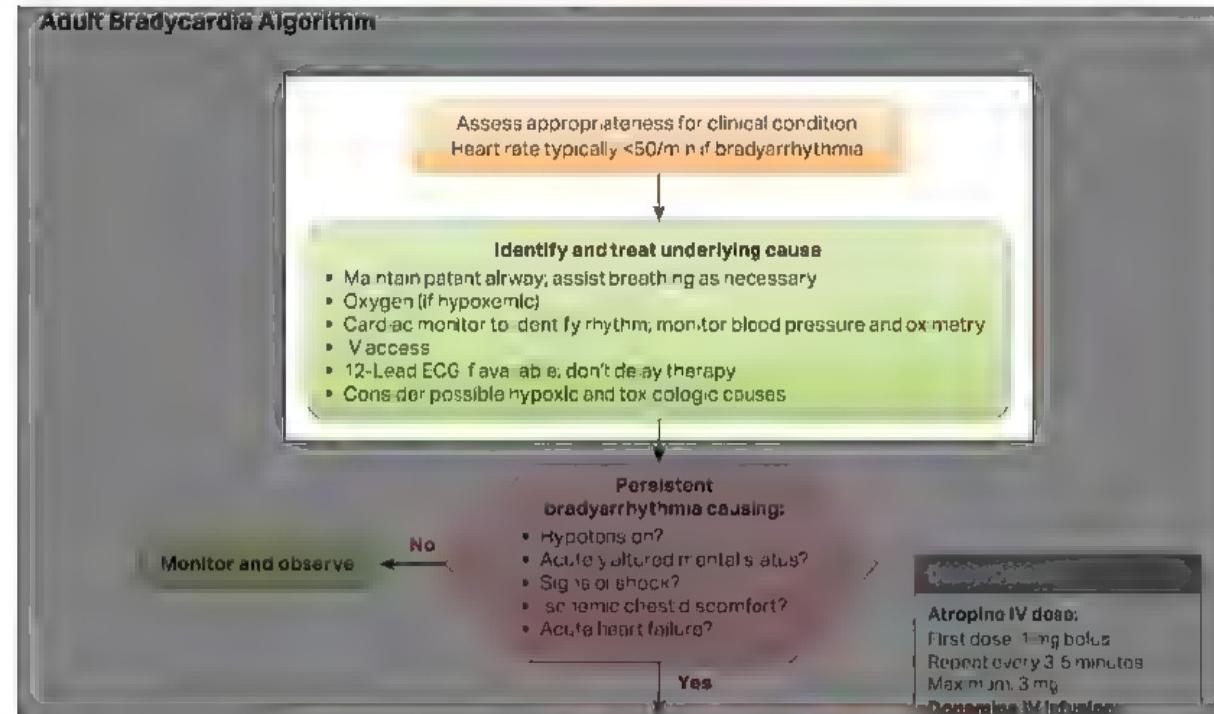


MANAGING BRADYCARDIA

D: Conduct a problem-focused history and physical examination; search for possible hypoxic and toxicologic causes; and treat possible contributing factors.

Push ► for reading content
about

Adult Bradycardia Algorithm



1 2 3 4 **NEXT**

CHALLENGE US **?**



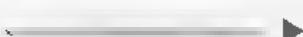
Self-Assessment **?**

Adjust your competence estimate to the right to focus on the questions

ADVANCED BEGINNER



Coach

Push ▶ for reading content
a card

MANAGING BRADYCARDIA

Are Signs or Symptoms Caused by Persistent Bradycardia?

Look for these adverse signs and symptoms of the bradycardia:

- **Symptoms:** acutely altered mental status, signs of shock, ischemic chest discomfort, shortness of breath, weakness, fatigue, lightheadedness, dizziness, presyncope or syncope
- **Signs:** hypotension, acute heart failure, ventricular arrhythmias related to the bradycardia
- **Are the signs and symptoms related to the slow heart rate?**

Sometimes the symptom is not due to the bradycardia. For example, hypotension associated with bradycardia may be due to myocardial dysfunction rather than the bradycardia. Keep this in mind when you reassess the patient's response to treatment.

Adult Bradycardia Algorithm

Assess appropriateness for clinical condition.
Heart rate typically <50/min if bradycardia



Identify and treat underlying cause

- Maintain patent airway, assist breathing as necessary
- Oxygen (if hypoxic)
- Cardiac monitor to identify rhythm, monitor blood pressure and oximetry
- IV access
- 12-Lead ECG, if available, don't delay therapy

PREVIOUS

1

2

3

4

NEXT



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

CHALLENGE US





Coach



Push ► for reading content
about.



MANAGING BRADYCARDIA

bradycardia. Keep this in mind when you reassess the patient's response to treatment.

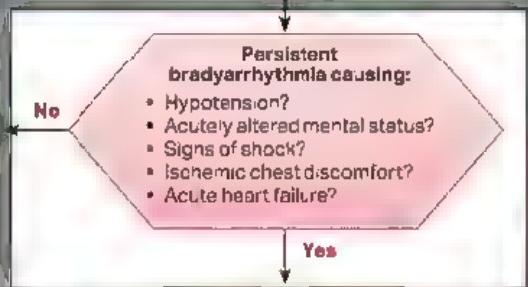
Adult Bradycardia Algorithm

Assess appropriate less for clinical condition
Heart rate typically <50/min if bradycardia

Identify and treat underlying cause

- Maintain patent airway, assist breathing as necessary
- Oxygen (if hypoxic)
- Cardiac monitor to identify rhythm, monitor blood pressure and oxygen saturation
- V access
- 12-Lead ECG available: don't delay therapy
- Consider possible hypoxic and toxicologic causes

Monitor and observe



Yes

No

Atropine

Atropine IV dose:
First dose: 1 mg bolus
Repeat every 3-5 minutes.
Maximum: 3 mg
Dopamine IV infusion:
Usual infusion rates: 5-20 mcg/kg per minute

PREVIOUS 1 2 3 4

NEXT

CHALLENGE US



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



MANAGING BRADYCARDIA

The key clinical question is whether the bradycardia is causing the patient's symptoms or some other illness is causing the bradycardia

Push ► for reading content
about

Assess for Adequate Perfusion?

You must now decide if the patient has adequate or poor perfusion

- If the patient has adequate perfusion, monitor and observe.
- If the patient has persistent bradycardia causing poor perfusion, proceed to treatment.

Treatment Sequence Summary

If the patient has poor perfusion secondary to bradycardia, treat as follows:

- Give atropine as first-line treatment: atropine 1 mg IV, may repeat to a total dose of 3 mg IV
- If atropine is ineffective, provide transcutaneous pacing and/or dopamine 5 to 20 mcg/kg per minute (chronotropic or heart rate dose) or epinephrine 2 to 10 mcg/min.

Adult Bradycardia Algorithm

Assess appropriateness for clinical condition

PREVIOUS

1

2

3

4

NEXT

CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



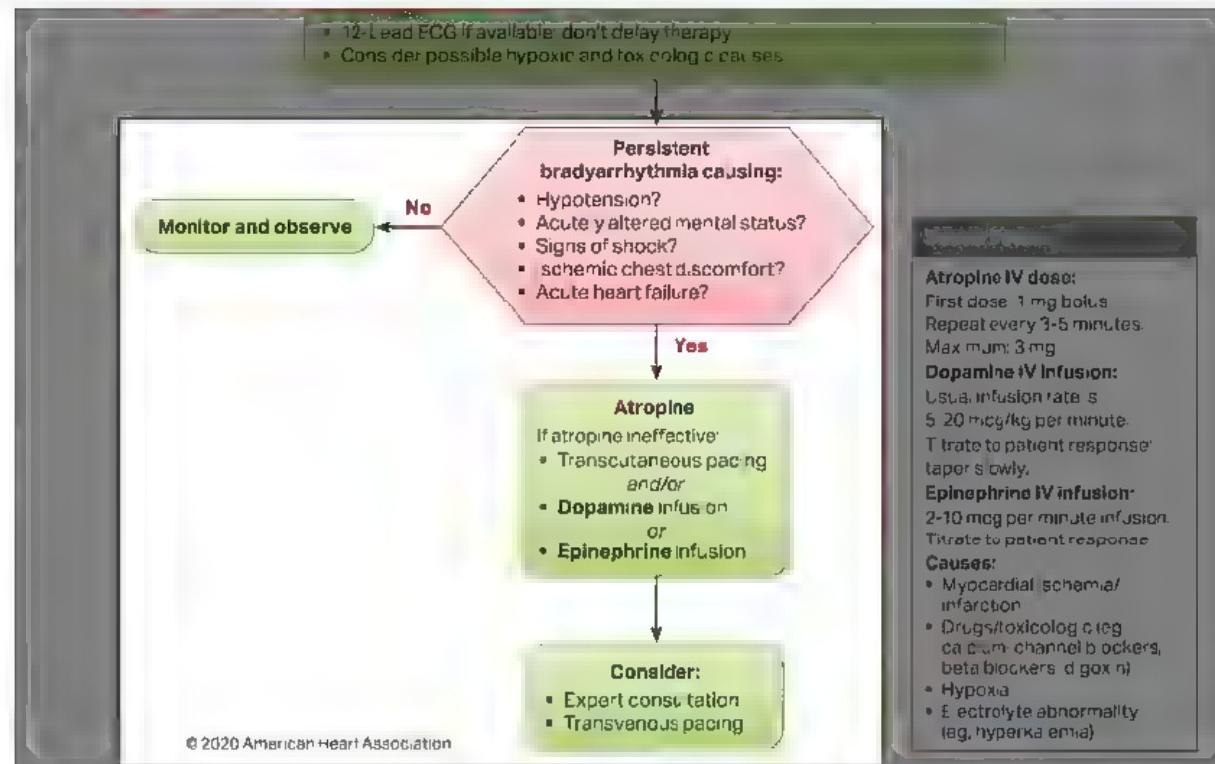
Coach



Push ► for reading content
a loud



MANAGING BRADYCARDIA



PREVIOUS 1 2 3 4

NEXT

CHALLENGE US



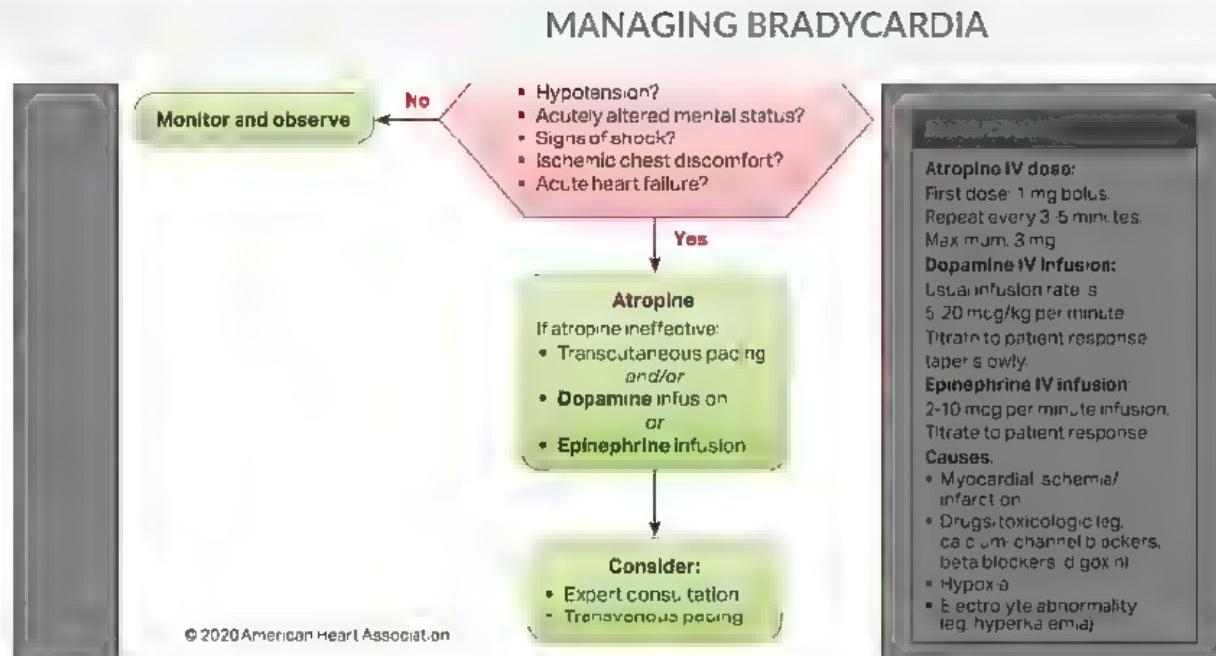
Self-Assessment ?
Adjust your competence estimate to the right to focus on the questions

ADVANCED BEGINNER

Coach



Push ► for reading content
a loud



The severity of the patient's clinical presentation determines the treatment sequence. For patients with stable bradycardia, move quickly through this sequence. These patients may be in pre-cardiac arrest and may need multiple interventions simultaneously. Avoid relying on atropine in type I second-degree or third-degree AV block or in patients with third-degree AV block with a new wide QRS complex where the location of the block is likely to be in infranodal tissue (such as in the bundle of His or more distal).

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions

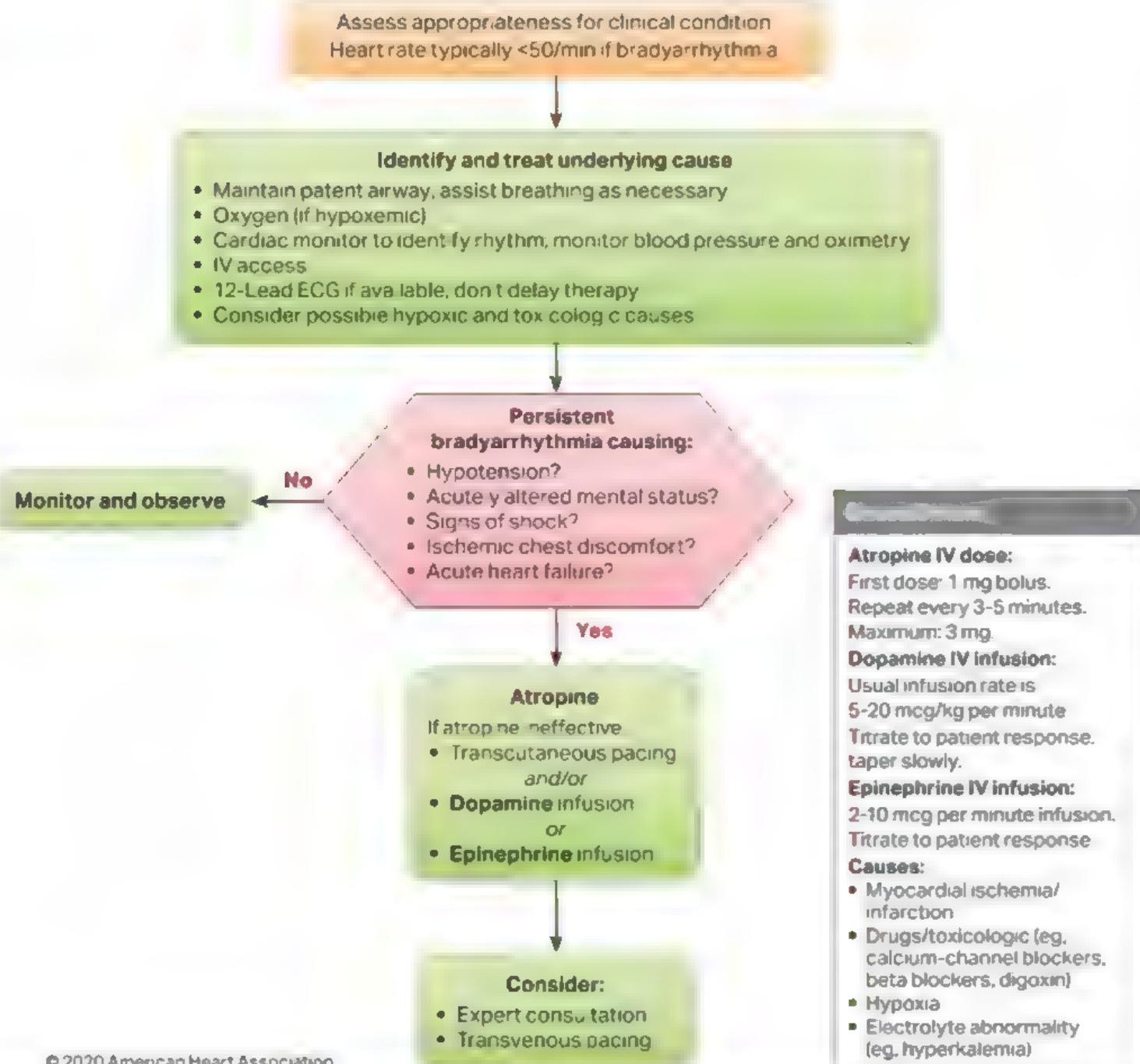


ADVANCED BEGINNER

PREVIOUS 1 2 3 4 NEXT

CHALLENGE US ?

Adult Bradycardia Algorithm



56% PROGRESS HeartCode ACLS 2025

4h 5m left

TT Ahmed Othman

A



Coach



Symptomatic bradycardia is defined by a heart rate less than beats per minute.

You got it!

Learn more here:

Managing Bradycardia

You Wrote

50

WHY?



I Know It

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time  X

Coach



What is the first-line treatment for unstable bradycardia?

CHOOSE THE CORRECT ANSWER

Epinephrine

 Atropine

Lidocaine

Amiodarone



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

56% PROGRESS: HeartCode ACLS 2025

4h 1m left

TT Ahmed Othman

A

Coach



What is the first-line treatment for unstable bradycardia?

You got it!

Your Answer | Atropine

Learn more here:

Managing Bradycardia

CHALLENGE US

NEXT

Know it

Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEG NER

Coach



ATROPINE FOR BRADYCARDIA

Push ▶ for reading content
a loud

📋 Indications

If you find no immediately reversible causes, atropine remains the first-line drug for acute stable bradycardia. Atropine sulfate acts by reversing cholinergic-mediated decreases in the heart rate and AV node conduction. Dopamine and epinephrine may be successful as an alternative to TCP.

💡 How to Administer

For bradycardia, give atropine 1 mg IV every 3 to 5 minutes (maximum dose of 3 mg IV).

- Note that atropine doses of less than 0.5 mg IV may further slow the heart rate

Use atropine cautiously in the presence of acute coronary ischemia or myocardial infarction (MI). An atropine-mediated increase in heart rate may worsen ischemia or increase infarct size.

1 2 **NEXT**

CHALLENGE US

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



Coach



ATROPINE FOR BRADYCARDIA

Push ► for reading content
a old

Other Treatments

Do not rely on atropine in Mobitz type II second-degree or third-degree AV block or in patients with third-degree AV block with a new wide QRS complex. These bradycardias likely will not respond to reversal of cholinergic effects by atropine.

Preferably, treat them with TCP or β -adrenergic support as temporizing measures while the patient is prepared for transvenous pacing. Atropine administration should not delay external pacing or β -adrenergic infusion for patients with impending cardiac arrest.

Alternative drugs may also be appropriate in special circumstances, such as the overdose of a β -blocker or calcium channel blocker. Do not wait for a maximum dose of atropine if the patient presents with second-degree or third-degree block; rather, move to a second-line treatment after 2 to 3 doses of atropine.

PREVIOUS

1

2



CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



-4h 2m left

Coach



What's the recommended first dose of IV atropine for the management of bradycardia?

CHOOSE THE CORRECT ANSWER

 1 mg IV

1.5 mg IV

2 mg IV

0.5 mg IV

I KNOW IT!
I THINK I KNOW IT!
I DON'T KNOW IT!
NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

56% PROGRESS HeartCode ACLS 2025

A Ahmed Othman

A

-4h 2m left

Coach



What's the common adult first dose of IV Atropine for bradycardia? (single answer)

You got it!

Learn more here:

Your Answer

1 mg IV

Atropine for Bradycardia



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



57% PROGRESS HeartCode ACLS 2025

3h 58m left

AH Ahmed Othman

A



Coach



What is a complication of IV Atropine when administered doses are given from 0.5 mg?

CHOOSE THE CORRECT ANSWER

Reentrant tachycardia

Further slowing of heart rate

Heart block

Bronchospasm

I KNOW IT!

I THINK I KNOW IT!

I DON'T KNOW IT

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

≡

57% PROGRESS HeartCode ACLS 2025

31:58m left

TT Ahmed Othman

A

<

Coach



What is a complication of IV atropine when administered in doses of less than 0.5 mg?

You got it!

Learn more here:

Your Answer Further slowing of heart rate

Atropine for Bradycardia

Know it

CHALLENGE JS

NEXT ➔



Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



Coach



EPINEPHRINE AND DOPAMINE FOR BRADYCARDIA

Push ▶ for reading content
a loud

Treatment Sequence: Epinephrine and Dopamine

A β -adrenergic infusion (e.g. dopamine or epinephrine) is not usually a first-line agent for treating unstable bradycardia, but it can be used as an alternative when a bradycardia is unresponsive to treatment with atropine. You can also use a β -adrenergic infusion as a temporizing measure while the patient is prepared for transvenous pacing.

Because epinephrine and dopamine are vasoconstrictors as well as chronotropes, healthcare providers must assess the patient's intravascular volume status and avoid hypovolemia when using these drugs. Dobutamine (a β -adrenergic agonist) is appropriate when vasoconstriction is not desired.

Either epinephrine infusions or dopamine infusions may be used for patients with stable bradycardia, particularly if associated with hypotension for whom atropine may be inappropriate or after atropine fails.

Dosage: Epinephrine and Dopamine

Begin epinephrine infusion at a dose of 2 to 10 mcg/min and titrate to patient response

Begin dopamine infusion at 5 to 20 mcg/kg per minute and titrate to patient response. At lower doses, dopamine has a more selective effect on heart rate; at higher doses (greater than 10 mcg/kg per minute), it also has vasoconstrictive effects.

Self-Assessment

Adjust your competence estimate to the right to focus on the questions

I KNEW GOT IT NOW THINK I GOT IT DONT GET IT

CHALLENGE US



☰

59% PROGRESS HeartCode ACLS 2025

TT Ahmed Othman

A

←

Coach



What is the recommended dose of epinephrine in the treatment of symptomatic bradycardia unresponsive to atropine?

CHOOSE THE CORRECT ANSWER

2 to 10 mcg/kg per minute

2 to 10 mcg per minute

5 to 20 mcg per minute

5 to 20 mcg/kg per minute

I KNOW IT!

I THINK I KNOW IT!

I GUESS IT!

NO IDEA!

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



LTI does not have a session time: X



59% PROGRESS HeartCode ACLS 2025

4h 55m left

TT Ahmed Othman

A

<

Coach



What is the command for using 1mg of epinephrine with the administration of epinephrine by cardiac compression in adults?

You got it!

Learn more here:

Your Answer

2 to 10 mcg per minute

Epinephrine and Dopa..



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED DEFIBRILLATION



59% PROGRESS: HeartCode ACLS 2025

3h 55m left

TT Ahmed Othman

A

<

Coach



What is the recommended infusion rate for dobutamine in the management of symptomatic bradycardia unresponsive to atropine?

CHOOSE THE CORRECT ANSWER

2 to 10 mcg/kg per minute

5 to 20 mcg/kg per minute

5 to 20 mcg per minute

2 to 10 mcg per minute

KNOW IT

I'M NOT SURE

I DON'T KNOW

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions

≡

59% PROGRESS: HeartCode ACLS 2025

-3h 55m left

TT Ahmed Othman

A

←

Coach



What is the recommended infusion rate for epinephrine in the treatment of symptomatic bradycardia unresponsive to atropine?

You got it!

Learn more here

Your Answer

5 to 20 mcg/kg per minute

Epinephrine and Dopa...



Know it

CHALLENGE JS

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



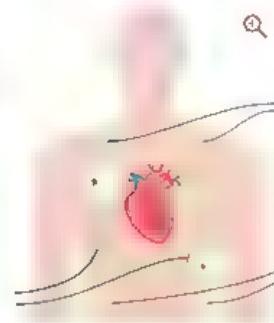
ADVANCED BEGINNER

Coach



TRANSCUTANEOUS PACING

Many devices can pace the heart by delivering an electrical stimulus causing electrical depolarization and subsequent cardiac contraction and TCP delivers pacing impulses to the heart through the skin via cutaneous electrodes. Most defibrillator manufacturers have added a pacing mode to manual defibrillators. Performing TCP is often as close as the nearest defibrillator, but you should know the indications, techniques, and hazards for using TCP.



TCP is a second-line treatment for unstable bradycardia, but do not rely on atropine in Mobitz type II second-degree or third-degree AV block or in patients with third-degree AV block with a narrow QRS complex. These bradycardias likely will not respond to reversal of cholinergic effects by atropine; preferably treat them with TCP or β -adrenergic support as temporizing measures while the patient is prepared for transvenous pacing. Atropine administration should not delay external pacing or β -adrenergic infusion for patients with impending cardiac arrest.

1 2 **NEXT**

CHALLENGE US



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



Coach



TRANSCUTANEOUS PACING

Push ▶ for reading content
a out.



Indications and Precautions

Indications:

- Hemodynamically unstable bradycardia (eg. hypotension, acute altered mental status, signs of shock, ischemic chest discomfort, acute heart failure hypotension)
 - Unstable clinical condition likely due to the bradycardia
- Bradycardia with unstable ventricular escape rhythms

Precautions:

- TCP is contraindicated in severe hypothermia
- Conscious patients require analgesia for discomfort unless delay for sedation will cause or contribute to deterioration
- Do not assess the carotid pulse to confirm mechanical capture: electrical stimulation causes muscular jerking that may mimic the carotid pulse

PREVIOUS

1

2



CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions

ADVANCED BEGINNER

Coach



HOW TO PERFORM TRANSCUTANEOUS PACING

Push ► for reading content
a card

TCP may be useful to treat unstable bradycardia. TCP is noninvasive and can be performed by ACLS providers. Consider immediate pacing in unstable patients with high-degree heart block when IV access is not available. It is reasonable to initiate TCP in unstable patients who do not respond to atropine.

After initiating TCP, confirm electrical and mechanical capture. Because heart rate is a major determinant of myocardial oxygen consumption, set the pacing to the lowest effective rate based on clinical assessment and symptom resolution. Reassess the patient for symptom improvement and hemodynamic stability. Give analgesics and sedatives for pain control. Note that many of these drugs may further decrease blood pressure and affect the patient's mental status. Try to identify and correct the cause of the bradycardia.

⚠ Limitations

TCP has its limitations: it can be painful and may not produce effective electrical and mechanical capture if bradycardia is not causing the symptoms. TCP may be ineffective despite capture. For these reasons, consider TCP as an emergent bridge to transvenous pacing in patients with significant sinus bradycardia or AV block.

If you chose TCP as the second-line treatment and it is also ineffective (eg, inconsistent capture), begin an infusion of dopamine or epinephrine and prepare for possible transvenous pacing by obtaining expert consultation.

1

2

3

NEXT ➔

Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

CHALLENGE US





Coach



HOW TO PERFORM TRANSCUTANEOUS PACING

Sedation and Pacing

Most conscious patients should be sedated before pacing. If the patient is in cardiovascular collapse or rapidly deteriorating, you may need to start pacing without prior sedation, particularly if sedation drugs are not immediately available. Evaluate the need for sedation in light of the patient's condition and need for immediate pacing. A review of sedation drugs is beyond the scope of this course, but the general approach could include the following:

- Give a parenteral narcotic for analgesia.
- Give parenteral benzodiazepine for anxiety and muscle contractions.
- Use a chronotropic infusion once available
- Obtain expert consultation for transvenous pacing.

PREVIOUS

1

2

3

NEXT

CHALLENGE US



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

3h 52m left

Coach



HOW TO PERFORM TRANSCUTANEOUS PACING



Technique

Push ▶ for reading content
a loud.

Perform TCP by following these steps

- 1 Place pacing electrodes on the chest according to package instructions.
- 2 Turn the pacer on.
- 3 Set the demand rate to 60 to 80/min. You can adjust this rate up or down (based on patient clinical response, once pacing is established).
- 4 Set the current milliamperes output 2 mA above the dose at which consistent capture is observed (safety margin). External pacemakers have either fixed rates (asynchronous mode) or demand rates.

PREVIOUS

1

2

3

I KNEW IT

I DON'T KNOW

I TRIED IT

I DON'T GET IT

CHALLENGE US



Self-Assessment



Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



60% PROGRESS HeartCode ACLS 2025

3h 53m left

TT Ahmed Othman

A



Coach



What therapy is an acceptable alternative to defibrillation in the management of unstable bradycardia unresponsive to atropine?

CHOOSE THE CORRECT ANSWER

- Transcutaneous pacing
- Extracorporeal membrane oxygenation
- Ventricular assist device
- IV bolus epinephrine

I KNOW IT

I HINK IT

I DONT

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

60% PROGRESS HeartCode ACLS 2025

3h 53m left

AH Ahmed Othman

A

Coach



What therapy is a recommended alternative to epinephrine infusion in the management of unstable bradycardia unresponsive to atropine?

You got it!

Your Answer

Transcutaneous pacing

Learn more here:

How to Perform Transc



Know it

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions





61% PROGRESS. HeartCode ACLS 2025

3h 49m left

AH Ahmed Othman

A



Coach



What is your initial temporary setting for transcutaneous pacemaker use in the management of unstable bradycardia?

CHOOSE THE CORRECT ANSWER

30 to 50/min

60 to 80/min

90 to 110/min

50 to 70/min

KNOW IT!

IN PROGRESS

LEARN

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions





61% PROGRESS HeartCode ACLS 2025

3h 49m left

TT Ahmed Othman

A



Coach



What is your initial impulse with respect to the patient's pulse when you encounter him in the field for unstable bradycardia?

You got it!

Your Answer: 60 to 80/min

Learn more here: [How to Perform Transc.](#)

Know it: [CHALLENGE JS](#)

[NEXT](#)



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



How much of a safety margin (energy above the defibrillation energy you delivered) should you allow when you deliver a shock?

CHOOSE THE CORRECT ANSWER

15 mA

 2 mA

10 mA

5 mA

I KNOW IT
I THINK I KNOW IT
I DON'T KNOW IT
NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

61% PROGRESS HeartCode ACLS 2025

3h 49m left

AH Ahmed Othman

A

<

Coach



You got it!

Learn more here:

How to Perform Transc.

Your Answer

2 mA



Know it

CHALLENGE US

NEXT



Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ► for reading content
about



Introduction

A 75 year-old man fainted at home about 45 minutes ago. His wife says that he has not been acting right all week with periodic episodes of confusion and fatigue. The patient presents with HR 30/min (weak pulse), BP 66/43 mm Hg, RR of 20/min, and SpO₂ is 89%. He is alert and responsive.

CHALLENGE US

NEXT

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



61% PROGRESS HeartCode ACLS 2025

-3h 49m left

TT Ahmed Othman

A

Coach



Push ► for reading content
about

What should your next steps be to assess and treat this patient?

SELECT ALL THAT APPLY

- Establish IV access
- Obtain a 12-lead ECG
- Maintain the airway and administer oxygen if needed
- Prepare for synchronized cardioversion
- Transfer to interventional cardiology

KNOW IT

THINK I KNOW IT

DO IT

NO IDEA

Self-Assessment

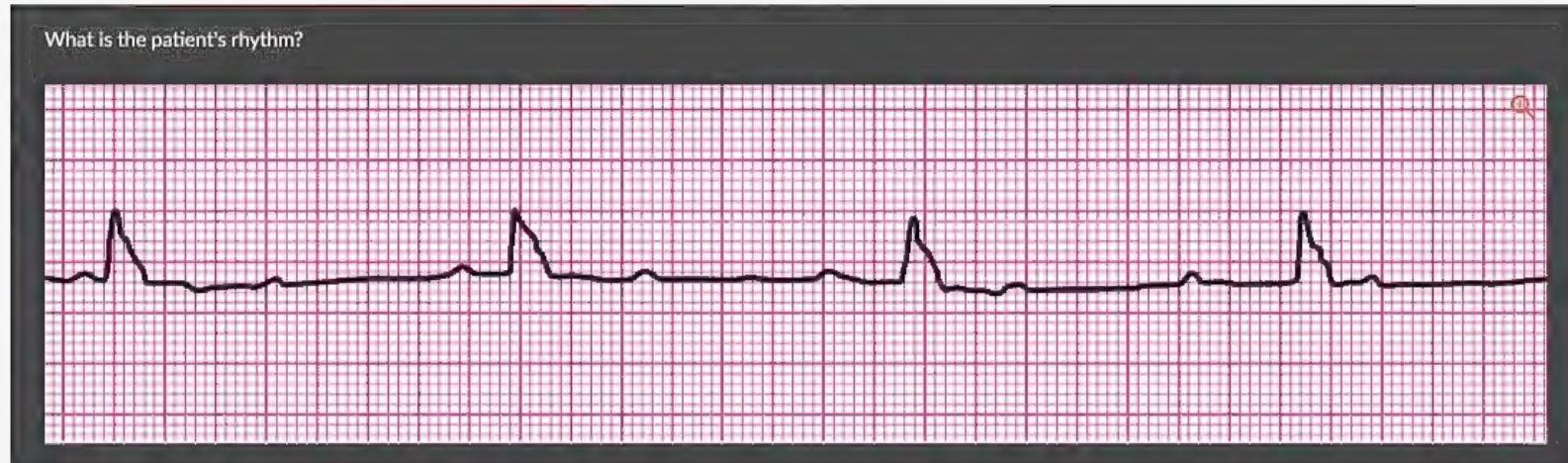
Adjust your competence estimate to the right to focus on the questions



Coach



Push ▶ for reading content aloud.



CHOOSE THE CORRECT ANSWER

Third-degree AV block

Mobitz type II second-degree AV block

Sinus bradycardia

Mobitz type I second-degree AV block

I KNOW IT

THINK I KNOW IT

NOT SURE

NO IDEA

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



61% PROGRESS: HeartCode ACLS 2025

AHMED OTHMAN

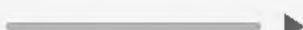
A



Coach



Push ▶ for reading content aloud.



You determine that the patient has poor perfusion.

What is your next step?



CHOOSE THE CORRECT ANSWER

Administer dopamine 20 to 25 mcg/kg per minute infusion

Administer lidocaine 1 mg/kg IV

Administer atropine 1 to 2 mg/kg infusion

Administer atropine 1 mg IV

I KNOW IT

THINK I KNOW IT

NOT SURE

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER



61% PROGRESS: HeartCode ACLS 2025

Ahmed Othman

A



Coach



Push ► for reading content aloud.



The patient does not respond to atropine. The vital signs are HR 34/min, BP 66/43 mm Hg, RR 18/min, and SpO₂ is 91%. He is responsive, but dizzy.

What options do you have to treat the patient?

SELECT ALL THAT APPLY

- Administer epinephrine 2 to 10 mcg per minute infusion
- Administer dopamine 5 to 20 mcg/kg per minute infusion
- Initiate transcutaneous pacing
- Perform synchronized cardioversion
- Administer epinephrine 2 mcg IV

I KNOW IT

THINK I KNOW IT

NOT SURE

NO IDEA

Self-Assessment

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER

Coach



Push ► for reading content aloud.

The patient does not respond to treatments. The vital signs are HR 40/min (weak pulse), BP 66/43 mm Hg, RR 18/min, and SpO₂ 91%. He is responsive but states that he feels tired.

What should you consider?



SELECT ALL THAT APPLY

- Admit for observation
- Prepare for transvenous pacing
- Stop treatment
- Seek expert consultation

I KNOW IT

THINK I KNOW IT

NOT SURE

NO IDEA

Self-Assessment ?

Adjust your competence estimate to the right to focus on the questions



ADVANCED BEGINNER